



PATENT
Attorney Docket No.3.0-008

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of

Villafane et al)

Group Art Unit: 1614

Serial No.:09/653,717)

Examiner: R. Cook

Filed: September 1, 2000)

RECEIVED

For: Use of Nicotine or)
Derivative thereof for the)
Treatment of Neurologic)
Diseases, in particular)
Parkinson Disease)

FEB 27 2004

DECLARATION PURSUANT TO 37 C.F.R. § 1.132

Hon. Commissioner of Patents
and Trademarks
Washington, D.C. 20231

I, Gabriel Salvadore VILLAFANE do hereby state and declare the following:

1. I am a co-inventor of the subject matter disclosed and claimed in the above-captioned application. I have ten (10) years of experience working in the field of Neurology. My Curriculum Vitae is attached as Exhibit 1.

2. I have reviewed the latest Official Action mailed September 16, 2003. It appears to me that in this Official Action the Examiner deems that the above-captioned patent application is obvious in the absence of unexpected results. We have obtained results and have observed them in patients which were administered with 0.2 mg to 5 mg per day per kilogram of body weight of nicotine and L-DOPA in a dose at least 30% lower than the effective dose when L-DOPA is administered in the absence of nicotine.

3. The patients chosen for this study had the following characteristics. The patients have had Parkinson Disease for a period of about 5 to 12 years. All of the patients chosen for this study were non smokers. Their ages ranged from 48 to 65 and the patients were previously treated with a classical treatment of L-DOPA, in addition to other classical medications. Neurological examination of these patients showed classical Parkinson Disease symptoms including severe motor, vegetative and cognitive symptoms. They presented at least some of the classical symptoms of Parkinson Disease which are bilateral akinesia, rigidity, arm tremors, gait and speech disturbances, masked faces, urological problems, sebaceous excess on the skin and disorganized thinking. Clinical evaluation of the patients having Parkinson's disease was carried out using conventional UPDRS I, II and III neurological tests. UPDRS stands for Unified Parkinson's Disease Rating Scale. A patient who has Parkinson's Disease has a UPDRS average of 42 without treatment. The observed results were compared with the UPDRS scale which is the following :

- UPDRS results between 0-17 corresponded to a normal neuro-psychological behavior;
- UPDRS results between 17-32 relates to neuro-psychological symptoms of Parkinson's Disease;
- UPDRS results superior to 32 corresponds to the Parkinson's Disease.

During the classical treatment with L-DOPA, patients have a meanUPDRS average of 24. Nevertheless, after about 5 years with L-DOPA treatment, secondary effects, like dyskinesia, increase drastically and Parkinsonian symptoms reappear.

4. The patients in paragraph 3 were administered nicotine at month 2 transdermally at a rate of from 0.2 mg to 5 mg per day per kilogram of body weight and a reduced in a dose at least 30% lower than the effective dose when L-DOPA is administered alone. The amount of nicotine administered increased over the next three consecutive months and stabilized at month 5 to month 8. From month 8 to month 24, the nicotine dosage that was administered was gradually increased.

5. The observed results were the following. Partial improvement of all symptoms was observed in the majority of patients three (3) months after beginning of the treatment with nicotine. At month 5 individual UPDRS III "Off" score improved

from 42 to 33 (33/42), arm tremor was reduced (0/3) rigidity (0/2) gait (0/2) and speech (0/2) were all reduced. UDPRS I (mental state) changed significantly (0/10) and UDPRS II (daily life, on-off) improved in both "off" (10/22) and "on" (6/3) scores. After 6 months, a major improvement in daily life activities was observed by others. For example, one patient undertook working in the garden, cycling and swimming after treatment at 6 months, while these activities were suspended for several years before. In addition handwriting was improved, speech was clearer, vocal volume was stronger and expression of emotions was restored. Improvement in urinary and sexual functions, as well as mood and memory was observed. Furthermore, stabilization of the orthostatic blood pressure was also observed. After 24 months of treatment as set forth in paragraph 4, the following was observed in the patients. Complete disappearance for the first time of dystonia and dyskinesia. Cognitive function was improved, as well as antiretrograde and retrograde memory problems. Axial symptoms associated with Parkinson's Disease such as voice articulation, phonation, walking equilibrium and turning right and left were also improved. Urological symptoms improved to such a degree that urological consultations were suspended. The skin quality was less sebaceous.

6. Besides the above study, another study was undertaken using functional imaging of the dopamine transporter (DAT), which defines the integrity of the dopaminergic system. 6 patients having Parkinson's Disease at stage IV of Hoehn and Yahr that were previously administered the classical treatment of L-DOPA (see, paragraph 7 below) were given a control DaTScan prior to the administering the treatment set forth in paragraph 4 above for only 8 months. After 8 months the DaTScan was repeated and revealed an increase of D1 and D2 pre-synaptic dopaminergic receptors in the nigrostriatum zone and thus a restructuration of this area. The DaTScan was administered as follows: first of all, the patients received potassium iodide orally to block the thyroid before intravenous injection of 153MBq [¹²³I]-FP-CIT (DaTScan, Amersham Health, FR); second, the brain SPECT (Single Photon Emission Computed Tomography) was performed 3 hours later using a dual-head camera, equipped with high-resolution collimators, in 128 x 128 matrices and for a total imaging time of 45 minutes. Quantification of striatal uptake was performed by means of circular regions of interest, drawn over the caudate nucleus, putamen

and occipital cortex. The ratio of specific striatal uptake to non displaceable uptake was calculated as an estimate of the dopamine receptor binding potential (BP).

7. The classical procedure used for Parkinson's disease patients is the administration of levadopa (L-DOPA). L-DOPA was introduced into clinical practice around 1967 and its administration was seen to be effective in improving akinesia and postural disorders in about 75% of patients, but its administration rarely improves rest tremor. Pharmacologically, L-DOPA is known to increase dopamine levels in the striatum and restores neurotransmitter balance between dopamine and acetylcholine. Nowadays, L-DOPA is often given in combination with a carboxylase inhibitor (carbidopa) which prevents destruction of L-DOPA in the bloodstream and peripheral tissues. Generally, a total dosage of L-DOPA from 300 mg to 2000 mg daily is administered to patients having Parkinson's disease. The dosage is progressively increased in accordance with the stage of the Parkinson's disease. The administration of L-DOPA, however does not address the underlying problem associated with Parkinson's disease, but only relieves some of the symptoms associated with this disease. Presently all patients diagnosed with Parkinson's disease will eventually require L-DOPA treatment.

8. The first side effects of patients treated with L-DOPA and/or carbidopa are nausea, vomiting, abdominal pain, anxiety, agitation, difficulty in speaking, memory loss, distress, numbness, delusions, hallucinations, insomnia, orthostatic hypotension and sometimes arrhythmia. The major difficulties experienced by patients using this classical therapy over time include fluctuations or sudden variations in response to the drugs used, known as "on-off response", the development of akinesia (weakness or immobility) and dyskinesia/dystonia (difficulty in performing voluntary movements), which are very problematic as Parkinson's disease progresses. One-third to one-half of patients on the classical L-DOPA therapy experience progressive dementia, as well as visual and tactile hallucinations.

9. As set forth in paragraph 6 above, the classical treatment using L-DOPA did not show any improvement in an increase of D1 and D2 pre-synaptic dopaminergic receptors in the nigrostriatum zone and thus a restructuration of this area. Hence, this treatment does not have an effect on the underlying disease of Parkinson's.

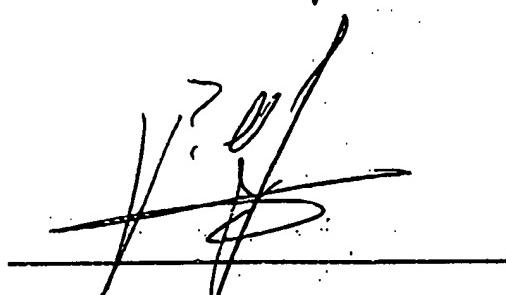
10. The Domino et al reference teaches that 12.5 mg/kg, a dose chosen since it provided effective relief of symptoms of Parkinson's disease when given alone, with various doses of nicotine. Although not noted in this reference, certainly some of the side effects as set forth in paragraph 8 above occurred in this monkey model, due to the dose of L-DOPA. If the same amount of L-DOPA (12.5 mg/kg) was administered to patients with Parkinson's disease, the side effects would be similar to those in paragraph 8.

11. In conclusion, it is observed that patients having Parkinson's disease, which were administered 0.2 mg to 5 mg per day per kilogram of body weight of nicotine and L-DOPA in a dose at least 30% lower than the effective dose when L-DOPA is administered in the absence of nicotine have improved symptoms such as a reduction in arm tremor, rigidity, gait and speech and an improvement in urinary and sexual functions, as well as mood and memory, in comparison with the classical treatment with L-DOPA. Moreover, an improvement of dopaminergic transporters at level of the striation, i.e., an improvement of dopamine uptake by D1 and D2 receptors was demonstrated using the treatment in the above-captioned patent application, while side effects of dyskinesia and akinesia were either totally abolished or improved.

12. I further declare that all statements made herein of my knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of this application or any patent issuing thereon.

16/02/2004

Date



Gabriel Salvador VILLAFANE

**CURRICULUM VITAE****Gabriel Salvador VILLAFANE**

Date of Birth : December 21, 1961 in Cordoba (Argentina)

Nationality : French and Argentinean

Single

Address : 51 Avenue du maréchal de Lattre de Tassigny
94010 CRETEIL Cedex

Phone : 01.49.81.23.03

Doctor of medicine (1987)

Qualification in Neurology (1990)

SUPERIOR STUDIES

Certificate so obtained

Assistant appointed to the chair of philosophy in the catholic university of Cordoba
(01.03.1982 to 30.11.1982)Assistant appointed to the chair of philosophy in the catholic university of Cordoba
(01.03.1983 to 03.08.1984)

Assistant in the haematology department of Hospital Italiano.

Doctor of medicine (September 10, 1987)

Qualification in Neurology (02.08.1987 to 09.09.1990) in the public hospital of
Cordoba (Department of Health Hospital San Roque - Cordoba - Argentina)
delivered by Dr. A.M. Lopez de Cardeilhac, responsible of the Neurology Department
and Dr. S.M. Foglia the Hospital Director.

Foreign Doctor of Medicine of Paris Hospitals (31/10/1992)

ERUDITE SOCIETY

Member of the French Society of Neurology

TITLES AND HOSPITAL ACTIVITIES

May 1987	Medical Assistant in the Neurology Department of Hospital San Roque
Jan.1988 to Nov.1988	Doctor in the Urgency Department of Hospital San Roque
Oct.1987 to Oct.1988	medical Assistant in the Clinical and Medical Department of Hospital San Roque
June 1989 to Dec.1989	Doctor in the Urgency Department of Hospital San Roque
1991-1992	Intern in the Neurology Department of Hospital Mondor (Pr. J-D Degos)

RECEIVED

FEB 27 2004

Since 1992	Team member of the Research on cerebral transplant in Parkinson's disease managed by Pr Cesaro - Neurology Department of Hospital Mondor
Since 1992	Full-time neurologist in the Neurology department (Pr. Degos) of Hospital Mondor
Since 1993	Weekly consultations in the Neurology Department (Pr. Degos) of Hospital Mondor
Since 1992-1996	Neurologist in the Neurology Department (Pr. Degos) of Hospital Mondor (Senior neurologist in the urgency Department)
Since 1995-1999	Part-time neurologist in the Medical and Nutrition Department (Pr. Jacotot) of Hospital Mondor
Since 1998	Full-time neurologist in the Neurology Department (pr. Louam) of Hospital Albert Chenevier

PUBLICATIONS

P1 : Long-term outcome of unilaterally transplanted parkinsonian patients. I. Clinical approach.

G.Defer, C.Geny, F.Ricolfi, G.Fenelon, J-C Monfort, P.Remy, G.Villafane, R.Jeny, Y.Samson, Y.Keravel, A.Gaston, J-D.Degos, M.Peschanski, P.Cesaro, J-P.Nguyen. Brain (1996) 119,41-50.

P2 : Speech improvement in a parkinsonian patient after bilateral mesencephalic intra-striatal graft.

G.Villafane, G.Defer, J-P.Nguyen, P.Brugieres, J-C.Montfort, P.Remy, R.Jeny, J-D.Degos, M.Peschanski, P.Cesaro.

Subjected

COMMUNICATIONS

C1 : Unilateral foetal grafting in 5 parkinsonian patients

G.defer, J-PNguyen, G.Fenelon, C.Geny, F.Ricolfi, J-C.Montfort, P.Remy, Y.Samson, G.Villafane, P.Hantraye, R.Jeny, A.Gaston, Y.Keravel, J-D.Degos, M.Peschanski, P.Cesaro

Communication to the Caen's meeting of the French Society of Neurology, October 14, 1994.

C2 : Unilateral foetal grafting in Parkinson's Disease : clinical results after 18 to 36 months of follow-up.

G.Defer, G.Fenelon, J-P.Nguyen, C.Geny, F.Ricolfi, G.Villafane, J-C.Montfort, P.Remy, Y.Samson, P.Hantraye, R.Jeny, A.Gaston, Y.Keravel, J-D.Degos, M.Peschanski, P.Cesaro.

Third Lille Neurosciences Workshop, October 20-21, 1994.

C3 : Speech improvement in a parkinsonian patient after bilateral mesencephalic intra-striatal graft.

P.Cesaro, G.Defer, J-P.Ngyuen, P.Brigieres, J-C.Montfort, P.Remy, G.Villafane,
R.Jeny, J-D.Degos, M.Peschanski.
6th International neuronal transplantation meeting, San Diego, February 1996.

C4 : Long-term nicotine treatment in Parkinson'disease : report of 2 cases.

G.Villafane, J-D.Degos, G.Lagruie, S.Petas, P.Cesaro.

6th International Congress of parkinson's disease and movement disorders,
Barcelone, June 2000.

C5 : Lon-term nicotine treatment in Parkinson'disease : report of cases after two
years.

G.Villafane

XIV International Congress of Parkinson's Disease, Helsinki, Finland, July 28-31
2001.

THE
RANDOM
HOUSE
DICTIONARY
of the
ENGLISH
LANGUAGE

JESS STEIN
Editor in Chief

LAURENCE URDANG
Managing Editor



© Copyright, 1967, 1966 by Random House, Inc.

All rights reserved under International and Pan-American Copyright Conventions

PUBLISHED IN NEW YORK BY RANDOM HOUSE, INC.

AND SIMULTANEOUSLY IN TORONTO BY RANDOM HOUSE OF CANADA LIMITED

The Random House Dictionary of the English Language and its abbreviations RHD and RHDEL are trademarks of Random House, Inc.

a. s/mm-n

Library of Congress Catalog Card Number: 67-12237

Entered words which we have reason to believe constitute trademarks have been designated as such.
However, neither the presence nor the absence of such designation should be regarded as affecting the legal status of any trademark.

The Concise French Dictionary, edited by Francesca L. V. Langbaum, Copyright, 1954, by Random House, Inc.

The Concise Spanish Dictionary, edited by Donald F. Solá, Copyright, 1954, by Random House, Inc.

The Concise Italian Dictionary, edited by Robert A. Hall, Jr., © Copyright, 1957, by Random House, Inc.

The Concise German Dictionary, edited by Jenni Karding Moulton, © Copyright, 1959, by Random House, Inc.

Major Dates in World History, edited by Charles D. Lieber and Anne Dyer Murphy, © Copyright, 1964, by Random House, Inc.

Entire contents of the Atlas and the index to the maps, © Copyright, 1966, by C. S. Hammond & Company.

Chart of Periodic Table of the Elements, © Copyright, 1964, by E. H. Sargent & Co.

Table of Common Proofreader's Marks, Copyright, 1950, © 1956, by Alfred A. Knopf, Inc.

Manufactured in the United States of America

WEBSTER'S
NEW INTERNATIONAL
DICTIONARY
OF THE
ENGLISH LANGUAGE

Second Edition
UNABRIDGED

UTILIZING A THI EXPERIENCE AND RESOURCES OF MORE THAN
ONE HUNDRED YEARS OF GENUINE WEBSTER DICTIONARIES

a Merriam-Webster
PUBLICATION

WILLIAM ALLAN NEILSON, PH.D., LL.D., L.H.D., LITT.D.
Editor in Chief

THOMAS M. KNOTT, PH.D.
General Editor

PAUL W. CARHART
Managing Editor



G. & C. MERRIAM COMPANY, PUBLISHER
SPRINGFIELD, MASS., U.S.A.

1949

ancient

FASHIONED refer to something dating from the past. **ANCIENT** implies existence or first occurrence in a distant past: *an ancient custom*. **ANTIQUATED** connotes something too old or no longer useful: *an antiquated building*. **ANTIQUE** suggests a curious or pleasing quality in something old: *antique furniture*. **OLD-FASHIONED** may disparage something as being out of date or may approve something old as being superior: *an old-fashioned hat; old-fashioned courtesy*. —**Ant.** 2. new.

an-client² (ān'shēnt), n. *Obs.* 1. the bearer of a flag. 2. a flag, banner, or standard; ensign. [var. of **ENSIGN** by confusion with **ANCIENT**]¹

An-client Ar'abic Or/der of No/bles of the Mystic Shrine. See under **Shriner**.

an-client his/tory, 1. the study or a course of study of history before the end of the Western Roman Empire A.D. 476. 2. *Informal*. information or events of the recent past which are common knowledge or are no longer pertinent: *Last week's news is ancient history*.

an-client-ly (ān'shēnt lē), adv. in ancient times; of old: customs observed anciently. [**ANCIENT** + -LY]

An-client Mys/tic Or/der Ro/sae Cru/cis. See under **Rosicrucian** (def. 2). *Abbr.*: AMORC.

An-client of Days', the Supreme Being; God.

An-client of Days', The, a hand-colored print by William Blake, the frontispiece of his poem *Europe* (1794).

an-client-ry (ān'shēn trē), n. 1. **Archaic**. a. ancient character or style. b. ancient times. 2. **Obs.** a. ancient lineage. b. old people. [**ANCIENT** + -RY]

an-cl-e (ān sīlē, āng kēlē), n., pl. **an-cl-i-a** (ān silē ē, āng kilē). *Rom. Religion*. 1. a shield given by Mars to Numa Pompilius as the palladium of Rome. 2. any of 11 counterfeits of this shield, carried with it on ceremonial occasions. [< L. equiv. to *an-* (var. of **ambi-AMBI**) + -cile, akin to *caedere* to cut]

an-cl-i-la (ān silē ē), n., pl. -las. 1. an accessory; auxiliary or adjunct. 2. **Archaic**. a maledservant. [see **ANCILLARY**]

an-cl-i-lar-y (ān'sə lērē or, esp. Brit., ān silē rē), adj. accessory; auxiliary: *an ancillary function*. [< L **ancillāri**(us) relating to maid-servants, equiv. to *ancilla*(a) maid-servant (*ancilla* maid-servant + -illa dim. suffix) + -ārius -ARY (r. -āris -ARY)]

an-clip-i-tal (ān sīp'i tāl), adj. *Bot., Zool.* two-edged: *ancipital stems*. [< L *ancipit*-(s. of *anceps*) two-headed, two-sided (an- var. of **ambi-AMBI** + *cipit*, var. of *caput* head) + -AL]

An-clip-i-tal (ān sīp'i tāl), adj. *Bot., Zool.* two-edged:

ancipital stems. [< L *ancipit*-(s. of *anceps*) two-headed,

two-sided (an- var. of **ambi-AMBI** + *cipit*, var. of *caput* head) + -AL]

An-clip-i-tal (ān sīp'i tāl), adj. *Bot., Zool.* two-edged:

ancipital stems. [< L *ancipit*-(s. of *anceps*) two-headed,

two-sided (an- var. of **ambi-AMBI** + *cipit*, var. of *caput* head) + -AL]

An-clip-i-tal (ān sīp'i tāl), adj. *Bot., Zool.* two-edged:

ancipital stems. [< L *ancipit*-(s. of *anceps*) two-headed,

two-sided (an- var. of **ambi-AMBI** + *cipit*, var. of *caput* head) + -AL]

An-clip-i-tal (ān sīp'i tāl), adj. *Bot., Zool.* two-edged:

ancipital stems. [< L *ancipit*-(s. of *anceps*) two-headed,

two-sided (an- var. of **ambi-AMBI** + *cipit*, var. of *caput* head) + -AL]

An-clip-i-tal (ān sīp'i tāl), adj. *Bot., Zool.* two-edged:

ancipital stems. [< L *ancipit*-(s. of *anceps*) two-headed,

two-sided (an- var. of **ambi-AMBI** + *cipit*, var. of *caput* head) + -AL]

An-clip-i-tal (ān sīp'i tāl), adj. *Bot., Zool.* two-edged:

ancipital stems. [< L *ancipit*-(s. of *anceps*) two-headed,

two-sided (an- var. of **ambi-AMBI** + *cipit*, var. of *caput* head) + -AL]

An-clip-i-tal (ān sīp'i tāl), adj. *Bot., Zool.* two-edged:

ancipital stems. [< L *ancipit*-(s. of *anceps*) two-headed,

two-sided (an- var. of **ambi-AMBI** + *cipit*, var. of *caput* head) + -AL]

An-clip-i-tal (ān sīp'i tāl), adj. *Bot., Zool.* two-edged:

ancipital stems. [< L *ancipit*-(s. of *anceps*) two-headed,

two-sided (an- var. of **ambi-AMBI** + *cipit*, var. of *caput* head) + -AL]

An-clip-i-tal (ān sīp'i tāl), adj. *Bot., Zool.* two-edged:

ancipital stems. [< L *ancipit*-(s. of *anceps*) two-headed,

two-sided (an- var. of **ambi-AMBI** + *cipit*, var. of *caput* head) + -AL]

An-clip-i-tal (ān sīp'i tāl), adj. *Bot., Zool.* two-edged:

ancipital stems. [< L *ancipit*-(s. of *anceps*) two-headed,

two-sided (an- var. of **ambi-AMBI** + *cipit*, var. of *caput* head) + -AL]

An-clip-i-tal (ān sīp'i tāl), adj. *Bot., Zool.* two-edged:

ancipital stems. [< L *ancipit*-(s. of *anceps*) two-headed,

two-sided (an- var. of **ambi-AMBI** + *cipit*, var. of *caput* head) + -AL]

An-clip-i-tal (ān sīp'i tāl), adj. *Bot., Zool.* two-edged:

ancipital stems. [< L *ancipit*-(s. of *anceps*) two-headed,

two-sided (an- var. of **ambi-AMBI** + *cipit*, var. of *caput* head) + -AL]

An-clip-i-tal (ān sīp'i tāl), adj. *Bot., Zool.* two-edged:

ancipital stems. [< L *ancipit*-(s. of *anceps*) two-headed,

two-sided (an- var. of **ambi-AMBI** + *cipit*, var. of *caput* head) + -AL]

An-clip-i-tal (ān sīp'i tāl), adj. *Bot., Zool.* two-edged:

ancipital stems. [< L *ancipit*-(s. of *anceps*) two-headed,

two-sided (an- var. of **ambi-AMBI** + *cipit*, var. of *caput* head) + -AL]

An-clip-i-tal (ān sīp'i tāl), adj. *Bot., Zool.* two-edged:

ancipital stems. [< L *ancipit*-(s. of *anceps*) two-headed,

two-sided (an- var. of **ambi-AMBI** + *cipit*, var. of *caput* head) + -AL]

An-clip-i-tal (ān sīp'i tāl), adj. *Bot., Zool.* two-edged:

ancipital stems. [< L *ancipit*-(s. of *anceps*) two-headed,

two-sided (an- var. of **ambi-AMBI** + *cipit*, var. of *caput* head) + -AL]

An-clip-i-tal (ān sīp'i tāl), adj. *Bot., Zool.* two-edged:

ancipital stems. [< L *ancipit*-(s. of *anceps*) two-headed,

two-sided (an- var. of **ambi-AMBI** + *cipit*, var. of *caput* head) + -AL]

An-clip-i-tal (ān sīp'i tāl), adj. *Bot., Zool.* two-edged:

ancipital stems. [< L *ancipit*-(s. of *anceps*) two-headed,

two-sided (an- var. of **ambi-AMBI** + *cipit*, var. of *caput* head) + -AL]

An-clip-i-tal (ān sīp'i tāl), adj. *Bot., Zool.* two-edged:

ancipital stems. [< L *ancipit*-(s. of *anceps*) two-headed,

two-sided (an- var. of **ambi-AMBI** + *cipit*, var. of *caput* head) + -AL]

An-clip-i-tal (ān sīp'i tāl), adj. *Bot., Zool.* two-edged:

ancipital stems. [< L *ancipit*-(s. of *anceps*) two-headed,

two-sided (an- var. of **ambi-AMBI** + *cipit*, var. of *caput* head) + -AL]

An-clip-i-tal (ān sīp'i tāl), adj. *Bot., Zool.* two-edged:

ancipital stems. [< L *ancipit*-(s. of *anceps*) two-headed,

two-sided (an- var. of **ambi-AMBI** + *cipit*, var. of *caput* head) + -AL]

An-clip-i-tal (ān sīp'i tāl), adj. *Bot., Zool.* two-edged:

ancipital stems. [< L *ancipit*-(s. of *anceps*) two-headed,

two-sided (an- var. of **ambi-AMBI** + *cipit*, var. of *caput* head) + -AL]

An-clip-i-tal (ān sīp'i tāl), adj. *Bot., Zool.* two-edged:

ancipital stems. [< L *ancipit*-(s. of *anceps*) two-headed,

two-sided (an- var. of **ambi-AMBI** + *cipit*, var. of *caput* head) + -AL]

An-clip-i-tal (ān sīp'i tāl), adj. *Bot., Zool.* two-edged:

ancipital stems. [< L *ancipit*-(s. of *anceps*) two-headed,

two-sided (an- var. of **ambi-AMBI** + *cipit*, var. of *caput* head) + -AL]

An-clip-i-tal (ān sīp'i tāl), adj. *Bot., Zool.* two-edged:

ancipital stems. [< L *ancipit*-(s. of *anceps*) two-headed,

two-sided (an- var. of **ambi-AMBI** + *cipit*, var. of *caput* head) + -AL]

An-clip-i-tal (ān sīp'i tāl), adj. *Bot., Zool.* two-edged:

ancipital stems. [< L *ancipit*-(s. of *anceps*) two-headed,

two-sided (an- var. of **ambi-AMBI** + *cipit*, var. of *caput* head) + -AL]

An-clip-i-tal (ān sīp'i tāl), adj. *Bot., Zool.* two-edged:

ancipital stems. [< L *ancipit*-(s. of *anceps*) two-headed,

two-sided (an- var. of **ambi-AMBI** + *cipit*, var. of *caput* head) + -AL]

An-clip-i-tal (ān sīp'i tāl), adj. *Bot., Zool.* two-edged:

ancipital stems. [< L *ancipit*-(s. of *anceps*) two-headed,

two-sided (an- var. of **ambi-AMBI** + *cipit*, var. of *caput* head) + -AL]

An-clip-i-tal (ān sīp'i tāl), adj. *Bot., Zool.* two-edged:

ancipital stems. [< L *ancipit*-(s. of *anceps*) two-headed,

two-sided (an- var. of **ambi-AMBI** + *cipit*, var. of *caput* head) + -AL]

An-clip-i-tal (ān sīp'i tāl), adj. *Bot., Zool.* two-edged:

ancipital stems. [< L *ancipit*-(s. of *anceps*) two-headed,

two-sided (an- var. of **ambi-AMBI** + *cipit*, var. of *caput* head) + -AL]

An-clip-i-tal (ān sīp'i tāl), adj. *Bot., Zool.* two-edged:

ancipital stems. [< L *ancipit*-(s. of *anceps*) two-headed,

two-sided (an- var. of **ambi-AMBI** + *cipit*, var. of *caput* head) + -AL]

An-clip-i-tal (ān sīp'i tāl), adj. *Bot., Zool.* two-edged:

ancipital stems. [< L *ancipit*-(s. of *anceps*) two-headed,

two-sided (an- var. of **ambi-AMBI** + *cipit*, var. of *caput* head) + -AL]

An-clip-i-tal (ān sīp'i tāl), adj. *Bot., Zool.* two-edged:

ancipital stems. [< L *ancipit*-(s. of *anceps*) two-headed,

two-sided (an- var. of **ambi-AMBI** + *cipit*, var. of *caput* head) + -AL]

An-clip-i-tal (ān sīp'i tāl), adj. *Bot., Zool.* two-edged:

ancipital stems. [< L *ancipit*-(s. of *anceps*) two-headed,

two-sided (an- var. of **ambi-AMBI** + *cipit*, var. of *caput* head) + -AL]

An-clip-i-tal (ān sīp'i tāl), adj. *Bot., Zool.* two-edged:

ancipital stems. [< L *ancipit*-(s. of *anceps*) two-headed,

two-sided (an- var. of **ambi-AMBI** + *cipit*, var. of *caput* head) + -AL]

An-clip-i-tal (ān sīp'i tāl), adj. *Bot., Zool.* two-edged:

ancipital stems. [< L *ancipit*-(s. of *anceps*) two-headed,

two-sided (an- var. of **ambi-AMBI** + *cipit*, var. of *caput* head) + -AL]

An-clip-i-tal (ān sīp'i tāl), adj. *Bot., Zool.* two-edged:

ancipital stems. [< L *ancipit*-(s. of *anceps*) two-headed,

two-sided (an- var. of **ambi-AMBI** + *cipit*, var. of *caput* head) + -AL]

An-clip-i-tal (ān sīp'i tāl), adj. *Bot., Zool.* two-edged:

ancipital stems. [< L *ancipit*-(s. of *anceps*) two-headed,

two-sided (an- var. of **ambi-AMBI** + *cipit*, var. of *caput* head) + -AL]

An-clip-i-tal (ān sīp'i tāl), adj. *Bot., Zool.* two-edged:

ancipital stems. [< L *ancipit*-(s. of *anceps*) two-headed,

two-sided (an- var. of **ambi-AMBI** + *cipit*, var. of *caput* head) + -AL]

An-clip-i-tal (ān sīp'i tāl), adj. *Bot., Zool.* two-edged:

ancipital stems. [< L *ancipit*-(s. of *anceps*) two-headed,

two-sided (an- var. of **ambi-AMBI** + *cipit*, var. of *caput* head) + -AL]

An-clip-i-tal (ān sīp'i tāl), adj. *Bot., Zool.* two-edged:

ancipital stems. [< L *ancipit*-(s. of *anceps*) two-headed,

two-sided (an- var. of **ambi-AMBI** + *cipit*, var. of *caput* head) + -AL]

An-clip-i-tal (ān sīp'i tāl), adj. *Bot., Zool.* two-edged:

ancipital stems. [< L *ancipit*-(s. of *anceps*) two-headed,

two-sided (an- var. of **ambi-AMBI** + *cipit*, var. of *caput* head) + -AL]

An-clip-i-tal (ān sīp'i tāl), adj. *Bot., Zool.* two-edged:

ancipital stems. [< L *ancipit*-(s. of *anceps*) two-headed,

two-sided (an- var. of **ambi-AMBI** + *cipit*, var. of *caput* head) + -AL]

An-clip-i-tal (ān sīp'i tāl), adj. *Bot., Zool.* two-edged:

ancipital stems. [< L *ancipit*-(s. of *anceps*) two-headed,

two-sided (an- var. of **ambi-AMBI** + *cipit*, var. of *caput* head) + -AL]

An-clip-i-tal (ān sīp'i tāl), adj. *Bot., Zool.* two-edged:

ancipital stems. [< L *ancipit*-(s. of *anceps*) two-headed,

two-sided (an- var. of **ambi-AMBI** + *cipit*, var. of *caput* head) + -AL]

An-clip-i-tal (ān sīp'i tāl), adj. *Bot., Zool.* two-edged:

ancipital stems. [< L *anc*